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EXAMINER
NGUYEN, DAVE TRONG

ART UNIT	PAPER NUMBER
1632	13

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/972,794	Applicant(s) Amalfitano
	Examiner Dave Nguyen	Art Unit 1632

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *Apr 1, 2003* .

2a) ☐ This action is **FINAL.** 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-148 and 207-236* is/are pending in the application.

4a) Of the above, claim(s) *6-11, 17-24, 44-58, 60-66, 72-74, 87-92, 99-104,* is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-5, 12-16, 25-43, 59, 67-71, 75-86, 93-98, 105-108, 110-116, 132,* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). *1 & 10*
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

Applicant's election with traverse of Group II claims, 94 claims which are claims 1-5, 12-16, 25-43, 59, 67-71, 75-86, 93-98, 105-108, 110-16, 132-133, 146-148, 207-209, and 213-22; drawn an isolated DNA comprising an adenovirus genome, wherein the genome lacks the coding sequence for a functional 100K protein. Applicant's traversal is that even with already having 94 claims being examined, it would not be unduly burdensome for the examiner to examiner the distinct subject matters as recited in hundred of claims in other groups, the traversal is not found persuasive because of the reasons set forth in the restriction requirement and because of the fact that in view of the nature and scope of the elected claimed invention which is construed as being drawn essentially to an adenovirus vector comprising an adenovirus genome, which has all of the necessary adenoviral elements that make up the genome, wherein the genome lacks the coding sequence for a functional 100K protein, all other groups are mutually exclusive and do not necessarily overlap with one another. For example, the adenovirus vector of Group I, particularly in view of the above interpretation, would necessarily have to have the Iva2 region coding sequence in the genome, whereas Group I claims, on the other hand, would have to be construed as having an adenovirus genome that lacks the Iva2 coding region. As such, the claims of Groups II, VII, X, and XI are linked improperly to the elected claims of Group II. Note that claim 17 and 105 are not linking claims but rather claims that embrace distinct subject matters that were restricted out, that claim 17 an improper dependent claim, and thus, can not be examined in light of the elected subject matter, and that claim 207 is construed as having an adenovirus genome that would have to necessarily contain all of the adenoviral elements other than the coding sequence of a functional adenovirus 100K protein. Thus, the claims of Group VII, X, and XI would not be necessarily examined if any remaining linking claim that is free of the prior art is still an improper linking claim.

The examiner would also like to note that applicant should exercise a discretion in presenting claims not in an unreasonable number of claims which, in view of the nature and scope of applicant's invention, might be unduly confusing, since the net result of which may confuse rather than to clarify applicant' elected subject matter.

Claims 4, 5, 14, 15, 30, 68, 86, 107, 108, 110, 112, 209 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim, particularly since the claims are attempted to be written so as to lack adenviral regions such as E1, E3, or IvA2, wherein the regions were clearly embraced by the recited genome of the base claims. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Note that if the amended claims if no longer read on the elected subject matter as explained in the preceding paragraphs, the amended claims will have to be withdrawn from consideration. Should applicant wish to claim the elected subject matter and yet also to claim an [$E1^-$, $100K^-$] adenovirus genome in a dependent claim, the base or independent claim should be amended as follows:

A propagation-defective adenovirus vector comprising an adenovirus genome, wherein the genome lacks the nucleotide sequence coding for a functionally active 100K protein, and wherein genome optionally lacks the nucleotide sequence coding for a functional E1 protein.

Note that should the claims be amended to reflect applicant's claimed invention in a clear and unambiguous manner, the claims should be amended in duplicity.

Claim 133 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 1. When read in the light of the as-filed specification, the only contemplated produced adenovirus particles when the method of the elected claim 105 is used is the very same adenovirus as claimed in the elected claim 1. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP 706.03(k).

Claims 1, 59, 75-77, 105, 146 are objected because the claims embrace non-elected subject matters. The claims must be amended so as not to claim non-elected subject matters.

Claims 1-5, 12-16, 25-43, 59, 67-71, 75-77, 86, 93-98, 105-108, 110-16, 132-133, 146-148, 207-209, and 213-22 are objected in the recitation of "comprising one or more deletion(s)" because it appears on the basis of the as-filed specification applicant attempts to claim an

adenovirus genome that lacks the coding sequence for a functional 100K protein. However, that is not same as claiming a genome that comprises one or more deletion(s), since the deletions cannot be contained in recited genome. Appropriate correction is requested, *e.g.*, adenovirus genome that lacks the coding sequence for a functional 100K protein. As such, claims 93 and 94 are objected for the same reasons as indicated above.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 69-71, 78-86, 93-95 are rejected under 35 U.S.C. 112, first paragraph, because the specification is enabling only for claims limited to:

An isolated mammalian cell comprising a propagation-defective adenovirus vector comprising an adenovirus genome, wherein the genome lacks the nucleotide sequence coding for a functionally active 100K protein, and wherein genome optionally lacks the nucleotide sequence coding for a functional E1 protein.

An isolated mammalian cell comprising an isolated DNA comprising a nucleotide sequence encoding an adenovirus 100K protein;

An isolated DNA comprising an adenovirus genome, wherein the genome lacks the nucleotide sequence coding for a functional adenovirus 100K protein.

The specification does not reasonably provide enablement for the presently pending claims encompassing any other derivatives as embraced and yet being unspecified by the as-filed specification.

Factors to be considered in determining whether a disclosure would require undue experimentation have been summarized in In re Wands, 858 F.2d 731, 8USPQ2d 1400 (Fed. Cir.

1988). They include (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims.

With respect to base claims 69 and 78, it is apparent on the basis of applicant's disclosure, which provides only sufficient guidance as to how to make and use an isolated or cultured mammalian cell comprising an isolated DNA comprising a nucleotide sequence encoding an adenovirus 100K protein, wherein the isolated or cultured cell is essentially employed as an adenovirus producer cell in the context of an ex vivo cultured medium wherein generation of adenovirus particles can be generated in the cell, also see par. Bridging columns 11 and 12.. also, the as-filed specification only teaches how to make and use an isolated cell comprising the very same adenovirus particles as discussed above. While it is apparent that a skilled artisan could use the claimed adenovirus particles to deliver a coding DNA to a cell *in vivo,* it is not apparent how a skilled artisan, without any undue experimentation, can use the Ad-transduced cell in any context of apparent utility. As such, it is apparent that the as-filed application is only enabling for an isolated mammalian cell comprising an isolated mammalian DNA comprising a nucleotide sequence encoding an adenovirus 100K protein, and for An isolated mammalian cell comprising a propagation-defective adenovirus vector comprising an adenovirus genome, wherein the genome lacks the nucleotide sequence coding for a functionally active 100K protein, and wherein genome optionally lacks the nucleotide sequence coding for a functional E1 protein.

With respect to claim 94, and claims dependent there from, it is also apparent that the as-filed specification only teaches an adenovirus genome that lacks the nucleotide sequence coding for a functional adenovirus 100K protein, when used in the context of adenovirus helper virus or a propagation-defective adenovirus genome based vector. The as-filed specification does not appear to teach any other isolated DNA sequence that lacks the nucleotide sequence coding for a functional adenovirus 100K protein. As such, it is not apparent how one skilled in the art, without undue experimentation, can reasonably extrapolated from the as-filed specification to the

make and use of any other claimed isolated DNA sequences that lacks the nucleotide sequence coding for a functional adenovirus 100K protein.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 81, 82, 93 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 93 is indefinite because it is not apparent as to how an isolated DNA sequence can encode an adenovirus 100K protein, and yet at the same time, lacks the adenovirus 100K protein coding sequence. The claim should be amended, for example, to indicate that:

An isolated DNA comprising an adenovirus genome, wherein the genome lacks the nucleotide sequence coding for a functional adenovirus 100K protein.

Claims 81 and 82 are indefinite in the recitation of "the packaging cell" because the term does not have a proper antecedent basis. The "packaging cell" does not necessarily refer to the cell of the base claim 78. Clarification is requested.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> a person shall be entitled to a patent unless --
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) a patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
> Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.
> This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 78-80 are rejected under 35 U.S.C. 102(e) as being anticipated by Reddy *et al.* (US 6,492,343).

Reddy teaches an isolated or cultured porcine cell comprising an isolated DNA sequence comprising PAV-3 left and right ITR(s), packaging signal sequence, and encodes a functional PAV-3 100K protein (entire disclosure, especially column 11 through column 12.

Thus, the patent anticipates the claims.

Claims 78 is rejected under 35 USC 103(a) as being anticipated by Slemenda (Nucleic acids Res, Vol. 18, No. 10, 1990), as evidenced by Reddy *et al.*, par. Bridging column 11 and column 12.

Slemenda teaches plasmid clones comprising an isolated DNA encoding a 100K protein of human enteric adeonovirus type 41 (Tak) (entire disclosure), and that the plasmid clones were grown for use in PCR and sequencing. Given that cloning techniques for production of plasmid clones involves the use or a prokaryotic cell such as *E. coli* cells, it would necessarily flows from the teaching of Slemenda that the plasmid clones were produced in bacterial cells prior to

sequencing. As such, the bacterial cells of Slemenda anticipates the claimed invention of claim 78.

Claims 78-82 are rejected under 35 U.S.C. 103(a) as being unpatentable over Slemenda (Nucleic acids Res, Vol. 18, No. 10, 1990) taken with Oosterom-Dragon (J. of Virology, Vol. 33, No. 3, pp. 1203-1207, 1980) and Reddy (US 6,492,343).

Slemenda teaches an isolated DNA encoding a 100K protein of human enteric adeonovirus type 41 (Tak) (entire disclosure). Slemenda does not teach that the DNA can be used for production of 100K proteins and subsequent immunological characterization.

However, at the time the invention was made, Oosterom-Dragon teaches that Ad 100K proteins are essential for the production of Ad hexons and a desire to determine its immunological characteristics.

In addition, Reddy teaches that DNA recombinant techniques such as those disclosed in the prior art cited on column 7 and column 8 are well-established in the prior art of record.

It would have been obvious for one of ordinary skill in the art to have employed the DNA recombinant techniques available in the prior art to produce 100K proteins by using the isolated DNA of Slemenda in any cell-expression systems including prokaryotic or eukaryotic cell production systems. One would have been motivated to use the isolated DNA coding for 100K protein of human enteric adeonovirus type 41 (Tak) in a cell production system such as those described on columns 7 and 8 of Reddy because Oosterom-Dragon teaches that Ad 100K proteins are essential for the production of Ad hexons and that there is a desire to determine the immunological characteristics of any isolated Ad 100K gene.

Thus, the claimed invention as a whole, was *prima facie* obvious.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 2-5, 12-16, 25-43, 59, 67-71, 75-86, 93-98, 105-108, 110-116, 132, 133, 146-148, 207-209, and 213-222 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 8-14 of U.S. Patent No. 6,328,958. Although the conflicting claims are not identical, they are not patentably distinct from each other because the examined claims and patent claims both embrace an replication propagation Adenovirus vector comprising an adenovirus genome, wherein the genome lacks the coding sequence for a functional 100K protein, and wherein the genome further comprises an expression cassette comprising a promoter operably linked to a DNA coding for a lysosomal acid-alpha-glucosidase. The patent claims when read in light of its disclosure clearly embrace cell-specific promoters such as muscle specific promoters, E1/E3-deleted adenovirus vectors. Thus, the patent claims and examined claims are obvious variants of one another.

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner *Dave Nguyen* whose telephone number is **(703) 305-2024**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, *Deborah Clark*, may be reached at **(703) 305-4051.**

Papers related to this application may be submitted to Group 1600 by facsimile transmission. Papers should be faxed to Group 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CM1 Fax Center number is **(703) 305-7401**.

Any inquiry of a general nature or relating to the status of this application should be directed to the *Group receptionist* whose telephone number is **(703) 308-0196**.

Dave Nguyen
Primary Examiner
Art Unit: 1632

DAVE T. NGUYEN
PRIMARY EXAMINER